faces: in this case the flat sides are first ground parallel to each other, or of equal thickness on the two edges, and the latter are then ground square by placing the sides in contact with the guide bar.

When the lap is of moderate size, one guide bar only is employed, and it is fixed across the diameter of the plate, which then allows of two workmen being employed on the opposite sides; but large grinding plates sometimes have two or three bars placed at equal distances across the face, and four or six workmen may then be employed at the same time upon separate pieces of marble.

The sand and water are continually thrown from the lap by the centrifugal force, and the large size of the works sometimes applied prevents the use of a rim standing up above the level of the lap to catch the wet, as used by lapidaries. Every workman, therefore, stands within a kind of trough like a box, about three feet high, without a top or back: the troughs serve as a protection to the workmen, who would otherwise be exposed to a continued shower of sand and water.

The surfaces of large slabs are in some cases ground upon revolving plates: in this case the axis is placed entirely beneath the surface of the plate, and the slab is traversed by two men over the face of the plate to grind it equally, but the machine next described is better adapted for large slabs of marble requiring tolerable accuracy.*

THOROUGHFARES OF LONDON.

As the town spreads and population increases, the great causeways of intercourse are more thronged with carriages, omnibuses, and wains. The streams of foot passengers also concentrate in the same lines of traffic, and were it not that the public conveyances take the greater numbers, our footways should now be thronged to suffusion, and the same inconvenience felt on them that is experienced in the driftways.

Those trunk lines of communication, such as the Strand, Fleet-street, and Holborn, which were all-sufficient for a city of five miles diameter, and for a population of one million, are closely packed now that the bills of mortality traverse nearly twice that extent, and contain double that number of living souls; and as the habitations and numbers are extended, so, in the same ratio, must the construction of public thoroughfares be felt. That main tube or pipe which might serve for the distribution of water to a second or third-rate town, would not suffice for a great city; and so, in like manner, will the leading streets be inadequate to the objects of free circulation, when the mass of human life seeking a free access through arterial ducts to the Bank (the great curricle of the body corporate), becomes impeded or stagnated in circulation.

In our city there are but two of these great arteries, the Strand and its continuation (which, from St. Mary's to the Exchange, may be called the *via sacra*), and Holborn: when one of these is under repair, then the tide of commerce is turned in a fearful eddy through the bye-lanes, and by circuitous as well as awkward routes, toward their destination: it seldom happens that both are free at the same time, and at the present moment, not only both of these, but most of the great leading streets are broken up and subjected to the slow process of bedding, ramming, and re-cementing.

The principal cause of these upturnings of the adamantine crust is the perpetual changing of gas and water pipes; which latter in particular, it is to be hoped, the Government will either take into hand, or bestow on some individual corporate management.

Little can be objected to the condition of the minor streets of London, which are superior to those perhaps of any other city, but still they are utterly inadequate to the traffic of omnibuses and heavy wains, for which the whole of the great gangways are insufficient, even when all open and free. It is, therefore, manifest that some other, or third line of route, is much to be desired for the purpose of disembarrassing the two central trunk lines.

* To be continued.

It would not be difficult to point out the right direction for this central city road, for it is plain that a course nearly parallel to the river would be the most appropriate, as being the most convenient for commerce and for the disembarrassement of the streets: as heavy waggons proceed at a walking pace, all light vehicles and passenger carriages needing despatch, are impeded by turnings-off, cross purposes, deliveries, and dead locks of the merchandise wains; therefore the line of the wharfs and river stores is clearly the most eligible.

Many plans have been proposed for this purpose, some to continue Thames-street westward towards the Temple; but here again is a dead lock, which, if passed by a loop line on the mud outside the garden, might resume its marginal course as far as Hungerford; yet the boldest innovator must stop appalled at the obstacles presented by Privy Gardens, and so on to Westminster, unless he again *take mud* and skirt the stream fairly on to Westminster-bridge.

The enormous expense of purchasing valuable mansions or business foundations is the real obstacle in the way, for no railway (great though their performances have been) has ever had to deal with the purchase and demolition of so much property.

The river line under high water mark, although the more expensive in practication, would certainly be the cheaper in attainment, for with the corporate sanction it would cost nothing.

So many plans have been given in THE BUILDER for a causeway and quay wall that it is unnecessary to repeat them, or any of them; but whatever may be done in this respect, the public would be much benefited and the great trade of the City facilitated, if *sewage*, *water*, and gas companies were consolidate under *one authoritative supervision*, and more particularly the water companies, the whole of which should be fused under one direction, to save the community from the perpetual disruption of the highways of life, as well as to pour in an *equable* and unfailing supply of that element which is at present drawn from the most polluted sources.

QUONDAM.

Books.

Land Drainage, Embankment, and Irrigation. By JAMES DONALD, C.E. Orr and Co., London.

THIS is one of Richardson's Rural Handbooks. It will probably be found useful in town as well as country, as some of its pages refer to town drainage specially, and others indirectly. The following remarks on depth and permanency of drainage may be offered as a specimen of the author's style of handling his subject:—

"Permanency is one object which should always be kept in view in draining, and this can only be attained by adopting a considerable depth. Shallow drains are exposed to injury by various causes, from which deep drains are exempt, such as pressure on the surface, the change of temperature, the burrowing of vermin, the penetration of roots, and the irregular entrance of impure water: all these tend to keep the earth around a shallow drain in a state of change which must considerably endanger its stability. The failure of draining hitherto has been owing more to want of skill and care in cutting the drains, and placing the materials therein, than to insufficiency of depth. Yet, when the effects arising from the above causes are considered, it will be seen that failure has often been accelerated by the want of a suitable depth."

The following particulars may be of use to some of our readers:—

"With the variations which occur in soils, and in the cost of labour and materials, it is of course impossible to give more than a general idea of the expense of draining. An outline of the principal items of expense may, however, be attempted, to assist those requiring information on the subject.

If the drains are 14 feet apart, the number of poles or roods (16½ feet) in an acre, will be 188½, and if the depth is 33 inches, the cutting may perhaps be done for 3d. per pole, or 2*l.* 7s. 1½d. per acre. In strong or hard subsoils, it would cost considerably more; but often with proper tools, active workmen, and good management, it need not exceed the above sum. Each acre would require 3,110½ pipes of 12 inches in length, and those of 2 inches bore may cost, on an average, 18s. per 1,000, or 2*l.* 16s. per acre. Collars will cost about half the price of the pipes, or 1*l.* 8s. per acre, making altogether, for tiles and cutting, 6*l.* 11s. 1½d. per acre. If the tiles are 15 inches long, they will be worth about 3s. 7d. per 1,000 more than those 12 inches long, supposing the value of the latter to be 18s. per 1,000. The number of collars required will also be one-fifth less, and this will make a difference of about 1s. 9½d. per 1,000 feet, or 5s. 7d. per acre. If one instead of two-inch pipes are used, the expense may be reduced probably as much as 35s. per acre.

Supposing the drains to be 40 feet apart, the number of poles in each acre would be sixty-six, and if the depth were 4 feet, the cutting would probably cost on an average 6d. per pole, or 33s. per acre. 1,089 tiles, 12 inches long, would be required per acre, and the cost of these, at 18s. per 1,000, would be 19s. 5d. per acre. Collars at half the price would be 9s. 8½d., making, for cutting and tiles, 3*l.* 2s. 1½d. per acre."

The Rookeries of London, Past, Present, and Prospective. By THOMAS BEAMES, M.A., Preacher and Assistant of St. James's, Westminster. Bosworth, Regent-street.

THIS is a subject teeming with interest—painful and plaintive. The working preacher is just the man whose opportunities enable him to treat such a subject fully and efficiently. The author deprecates the necessity which impelled him to adopt a tone of apparent levity in order to insure general attention to a subject of such grave importance. It is not the author, however, who has reason to be ashamed of that, but the levity-loving public, whose sympathies, nevertheless, when they *are* excited, want nothing in warmth or tenderness. In this very readable volume they will find enough to excite them, and, we hope, to leave a lasting impression, all the more that the tragedy is relieved by a little comedy occasionally.

The right feeling and charity of the reverend author in the following remarks we think merit quotation even in our limited columns:—

"It may be very well to plead that the miserable condition of Rookeries is owing to the habits of the labouring population; that the sum of money spent in public-houses bears a large proportion, we forget the exact amount, to the poor-rates of the country. Are there no Rookeries, then, in foreign cities where drunkenness is rare?—do not wretched and dear dwellings produce recklessness and disgust, which in this country vent themselves in intoxication rather than cabals, factions, and insurrections?

Men, even in the higher orders of society, whose homes are not comfortable, seek other resorts, though not confined to a single room, and use stimulants too, though not always such as produce inebriety. But the reading room, and the society to which the purchase of intoxicating liquor *is not the passport*, supply a refuge in the one case, which in the other the tap-room alone affords.

We want a large, comprehensive, national remedy. We must have an Act of Parliament. Let it discard as much as possible that technical language which renders so many of these documents inoperative: let it be compiled by practical men. Let nuisances, Rookeries, fever courts, *et hoc genus omne*, die the death: let them be replaced, not by shops for the tradesman, but by dwellings for the working man: let the number of inmates for each house be fixed, the due supply of water regulated by some provision which shall bring Water Companies to their senses. Let each family have a sitting-room and at least two bed-rooms. This may be done not merely at little cost, but at a remunerative outlay: it has been proved by those lodging-houses which

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